

1. (Currently amended) A semiconductor structure comprising: a substrate; a SiCAIN buffer layer region formed over the substrate, and an active region formed over the SiCAIN buffer layer region.

2. (Currently amended) A semiconductor structure comprising: a substrate; a SiCAIN region formed over the substrate, and an active region formed over the SiCAIN region;
~~The semiconductor structure of claim 1~~ wherein the active region comprises a gallium nitride region.

3. (Original) The semiconductor structure of claim 2, wherein the active region comprises a compound of the group consisting of GaN, AlGaN, InGaN, AlInGaN, AlN and InN.

4. (Currently amended) The semiconductor structure of claim 1, further comprising a crystalline oxide interface formed between the substrate and the SiCAIN buffer layer region.

5. (Original) The semiconductor structure of claim 4 wherein the crystalline oxide interface comprises Si-Al-O-N.

6. (Original) The semiconductor structure of claim 1, wherein the substrate comprises a silicon substrate.

7. (Original) The semiconductor structure of claim 1, wherein the substrate comprises a silicon carbide substrate.

8. (Original) The semiconductor structure of claim 1, wherein the substrate comprises a silicon germanium substrate.

9. (Canceled)

10. (Canceled)

11. (Canceled)
12. (Original) The semiconductor structure of claim 1 wherein the active layer is formed by gas source molecular beam epitaxy.
13. (Original) The semiconductor structure of claim 1 wherein the active layer is formed by metal organic chemical vapor deposition.
14. (Original) The semiconductor structure of claim 1 wherein the active layer is formed by atomic layer epitaxy.
15. (Original) The semiconductor structure of claim 4 wherein the crystalline oxide interface is formed by gas source molecular beam epitaxy.
16. (Original) The semiconductor structure of claim 4 wherein the crystalline oxide interface is formed by metal organic chemical vapor deposition.
17. (Original) The semiconductor structure of claim 4 wherein the crystalline oxide interface is formed by atomic layer epitaxy.
18. (Original) The semiconductor structure of claim 1 wherein the structure is operable as a microelectronic device.
19. (Original) The semiconductor structure of claim 1 wherein the structure is operable as an optoelectronic device.
20. (Currently amended) A semiconductor structure comprising: a substrate; a ~~Si-Al-O-N~~ crystalline oxide region formed over the substrate, a SiAlN region formed over the crystalline oxide region and an active region formed over the ~~Si-Al-O-N~~ crystalline oxide region.
21. (Original) The semiconductor structure of claim 20 wherein the active region

comprises a gallium nitride region.

22. (Original) The semiconductor structure of claim 20, wherein the active region comprises a compound of the group consisting of GaN, AlGaN, InGaN, AlInGaN, AlN and InN.

23. (Canceled)

24. (Original) The semiconductor structure of claim 23 20 wherein the crystalline oxide region interface comprises Si-Al-O-N.

25. (Original) The semiconductor structure of claim 20, wherein the substrate comprises a silicon substrate.

26. (Original) The semiconductor structure of claim 20, wherein the substrate comprises a silicon carbide substrate.

27. (Original) The semiconductor structure of claim 20, wherein the substrate comprises a silicon germanium substrate.

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Original) The semiconductor structure of claim 20 wherein the active region ~~layer~~ is formed by gas source molecular beam epitaxy.

32. (Original) The semiconductor structure of claim 20 wherein the active region ~~layer~~ is formed by metal organic chemical vapor deposition.

33. (Original) The semiconductor structure of claim 20 wherein the active region ~~layer~~ is formed by atomic layer epitaxy.

34. (Amended) The semiconductor structure of claim ~~23~~ 20 wherein the crystalline oxide region interface is formed by gas source molecular beam epitaxy.

35. (Amended) The semiconductor structure of claim ~~23~~ 20 wherein the crystalline oxide region interface is formed by metal organic chemical vapor deposition.

36. (Amended) The semiconductor structure of claim ~~23~~ 20 wherein the crystalline oxide region interface is formed by atomic layer epitaxy.

37. (Original) The semiconductor structure of claim 20 wherein the structure is operable as a microelectronic device.

38. (Original) The semiconductor structure of claim 20 wherein the structure is operable as an optoelectronic device.

39. (New) A semiconductor structure comprising: a Si substrate; a SiCAlN region formed over the substrate, and an active region formed over the SiCAlN region.

40. (New) The semiconductor structure of claim 39 wherein the active region comprises a gallium nitride region.

41. (New) The semiconductor structure of claim 39, wherein the active region comprises a compound selected from the group consisting of GaN, AlGaN, InGaN, AlInGaN, AlN and InN.

42. (New) The semiconductor structure of claim 39, further comprising a crystalline oxide interface formed between the substrate and the SiCAlN region.

43. (New) The semiconductor structure of claim 39 wherein the active region is formed by gas source molecular beam epitaxy.

44. (New) The semiconductor structure of claim 39 wherein the active region is formed by metal organic chemical vapor deposition.

45. (New) The semiconductor structure of claim 39 wherein the active region is formed by atomic layer epitaxy.